



Liquid detergent packets: Small, brightly coloured, convenient and hazardous!

Minh T Do, Margaret Herbert, Surveillance and Epidemiology Division, Centre for Chronic Disease Prevention, Public Health Agency of Canada, Ottawa, Ontario

Jonathon Maguire, Division of Paediatric Medicine, St Michael's Health Centre, Toronto, Ontario

Melanie Laffin Thibodeau, Canadian Paediatric Society, Ottawa, Ontario

The Smiths are busy raising two preschool children and managing multiple responsibilities at home and at work. They juggle household chores and child care on evenings and weekends. Like most Canadians, they strive to provide a safe home environment for their children. Laundry products are stored on a high shelf with other household chemicals. One evening, while preparing to do the laundry, Mr Smith becomes distracted and leaves the laundry basket on the floor with a liquid detergent packet on top. The laundry is forgotten and the following day one of the toddlers picks up the colourful detergent packet. It fits easily into her palm, and moisture on her hand starts to dissolve the packet's membrane. She tries to chew it and she bursts the membrane, releasing concentrated liquid detergent into her mouth. She starts to cry, pulls the packet from her mouth and rubs her face and eyes, further spreading the liquid detergent.

INTRODUCTION

The physical characteristics of single-load liquid detergent packets – malleable, shiny and brightly coloured – make them appealing to young children who mistake them for toys or candy. The water-soluble membrane covering these packets quickly dissolves when children place them in wet hands or the mouth, releasing the concentrated chemicals. The child's oral mucosa, gastrointestinal tract, skin and eyes may then be exposed to the concentrated detergent liquid (1).

Since the introduction of these popular products to North America in 2012, there has been a steady rise in child injuries from detergent packet exposure (1-4). In a recent report from the United States Poison Control Centers, >17,000 children were exposed to laundry detergent packets over a two-year period, including several hundred serious injuries and one death (1). In Canada, >100 cases have been reported in paediatric emergency departments over the past three years (2). To obtain more information on child injuries from detergent packets in Canada, the Canadian Paediatric Surveillance Program (CPSP), in partnership with the Public Health Agency of Canada and the Consumer Product Safety at Health Canada, conducted a one-time survey of Canadian paediatricians about child injuries following exposure to liquid detergent packets in the previous year (5).

SURVEY RESULTS AND LEARNING POINTS

- The CPSP study collected information on 54 children with injuries following detergent packet exposure.
- More than one-half (56%) were <2 years of age and 43% were two to four years of age. All but two of the children were treated in emergency departments or inpatient settings.

- Three-quarters (n=40) of the incidents involved exposure to detergent packets for laundry and the remainder were for dishwashers. Among the cases where access was known, two-thirds (n=23) of the children took detergent packets directly from the manufacturer's original package, and another seven children found a packet on the floor or lying around.
- The majority of children (n=47) were treated following ingestion; other exposures were to the eyes (n=6), skin (n=4) or lungs (n=3). Adverse events in order of frequency included nausea and vomiting (n=17), chemical burns to the mouth, esophagus or skin (n=15), pneumonitis (n=10), conjunctivitis (n=4), CNS depression (n=3) and corneal injuries (n=2).
- Twenty-five patients (46%) were admitted to hospital and six were treated in intensive care units. Six children were discharged from hospital with referral for medical follow-up and 21 were discharged without a need for follow-up (two cases were unspecified).
- Paediatricians and other health care providers can help to prevent such injuries by:
 - o Informing parents and caregivers about the risks liquid detergent packets pose to young children.
 - o Suggesting that families with preschool children use bulk detergent products rather than single-load formats.
 - o Recommending storing detergent and other inherently dangerous products out of sight and out of the reach of children.
 - o Recognizing that detergent packet exposure can lead to significant injury and contacting a poison control centre for initial management when there is uncertainty.

REFERENCES

1. Valdez AL, Casavant MJ, Spiller HA, et al. Pediatric exposure to laundry detergent pods. *Pediatrics* 2014;134:1127-35.
2. Unpublished health surveillance information from the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP), Public Health Agency of Canada.
3. Centers for Disease Control and Prevention (CDC). Health hazards associated with laundry detergent pods – United States, May-June 2012. *MMWR Morb Mortal Wkly Rep* 2012;61:825-9.
4. Huntington S, Heppner J, Vohra R, et al. Serious adverse effects from single-use detergent sacs: Report from a U.S. statewide poison control system. *Clin Toxicol* 2014;52:220-5.
5. Canadian Paediatric Surveillance Program, Canadian Paediatric Society. Survey: Exposure to liquid detergent capsules. <www.cpsp.cps.ca/uploads/surveys/detergent-capsules-survey-questions.pdf> (Accessed January 12, 2015)

The Canadian Paediatric Surveillance Program (CPSP) is a joint project of the Canadian Paediatric Society and the Public Health Agency of Canada, which undertakes the surveillance of rare diseases and conditions in children and youth. For more information, visit our website at www.cpsp.cps.ca.

Correspondence: Canadian Paediatric Surveillance Program, 2305 St Laurent Boulevard, Ottawa, Ontario K1G 4J8.

Telephone 613-526-9397 ext 239, fax 613-526-3332, e-mail cpssp@cps.ca, website www.cpsp.cps.ca

Accepted for publication January 16, 2015